



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Randy D. Jester : Examiner: **S. M. Rayford**

U.S. Serial No. 10/720,028 : Group Art Unit: **1772**

Filed November 21, 2003 :

Docket No. 1725 (TI-02-03) :

For: **CYCLOOLEFIN COPOLYMER
HEAT SEALABLE FILMS AND
PACKAGING INCORPORATING SAME** :

Assistant Commissioner for Patents
Washington, D.C. 20231

DECLARATION UNDER 37 CFR 1.132

Randy D. Jester, inventor of the subject matter of the above-noted patent application hereby declares that:

1. That he was awarded a BS and MS in Chemical Engineering degree from NC State University and has worked in the field of polymer technology for 27 years, and that he is a co-inventor of the pending '028 application referenced above.

2. That he understands from Counsel that the pending claims have been rejected over United States Application Publication No. 2002/0156195A1 of *Hausmann*, as well as

United States Patent No. 5,532,030 to *Hirose et al.*, and that he is familiar with the references referred to in making those rejections.

3. That he makes this *Declaration* on personal knowledge of the facts stated herein.
4. That claim 1 of the pending application is representative of the subject matter claimed:

Claim 1. A heat-sealable film suitable for heat sealing at low temperatures comprising at least one layer consisting essentially of a cycloolefin copolymer (COC), wherein the COC has a Tg of from about 30 to about 55°C.

5. That low temperature sealing (generally less than about 80°C) is desirable in several applications, notably the packaging industry, because it is suitable for many commercial processes and allows for higher production speeds. That the claimed glass transition temperature is critical to the heat sealing performance of the invention.
6. That, in his technical opinion, neither the *Hausmann* nor the *Hirose* reference provide guidance to a person of ordinary skill in the art on how to make films which are suitable for low temperature heat sealing, or which contain a layer consisting essentially of a cycloolefin copolymer with a Tg of between about 30 and 55 °C. That this opinion is based, in part, on the absence of any teaching in those references of which, if any, COC resins would be suitable for low temperature applications or how much resin to use.

7. That the inventive films enable the production of seals with unexpectedly high strengths at low sealing temperatures. That the high strength values are unexpected because the glass transition temperatures of the COC resins are much lower than most conventional heat sealing resins, and that one would expect a significant decrease in seal strength based on the Tg values used. That the high strengths of the present invention are shown in **Figures 1 and 2**, reproduced below, where the inventive low temperature seals have higher hot tack strengths and comparable or better ultimate seal strengths than standard films.

Figure 1

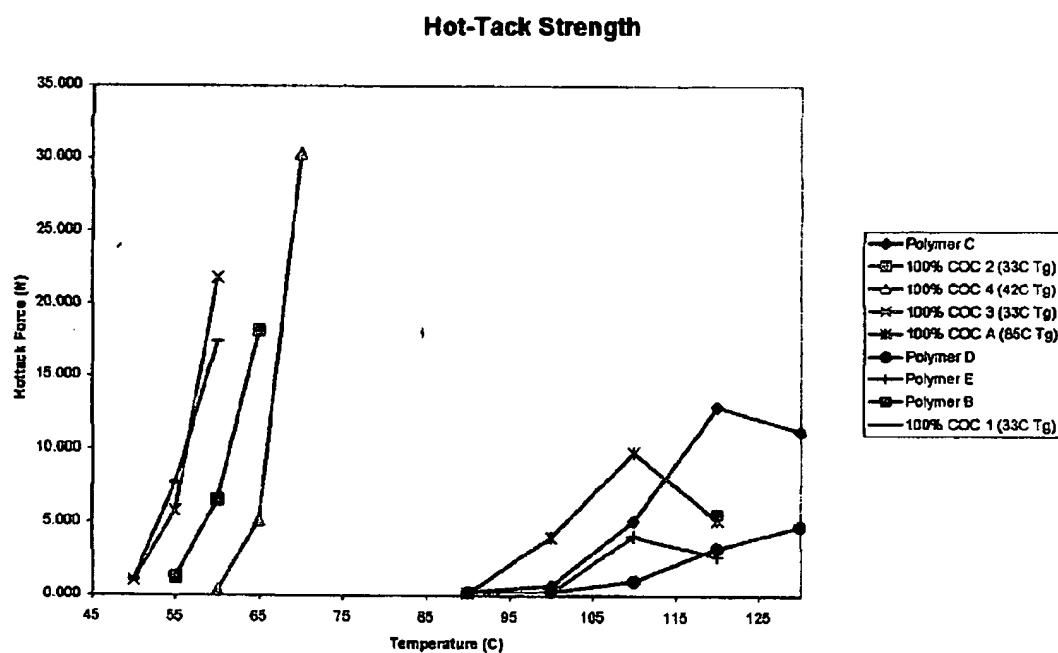
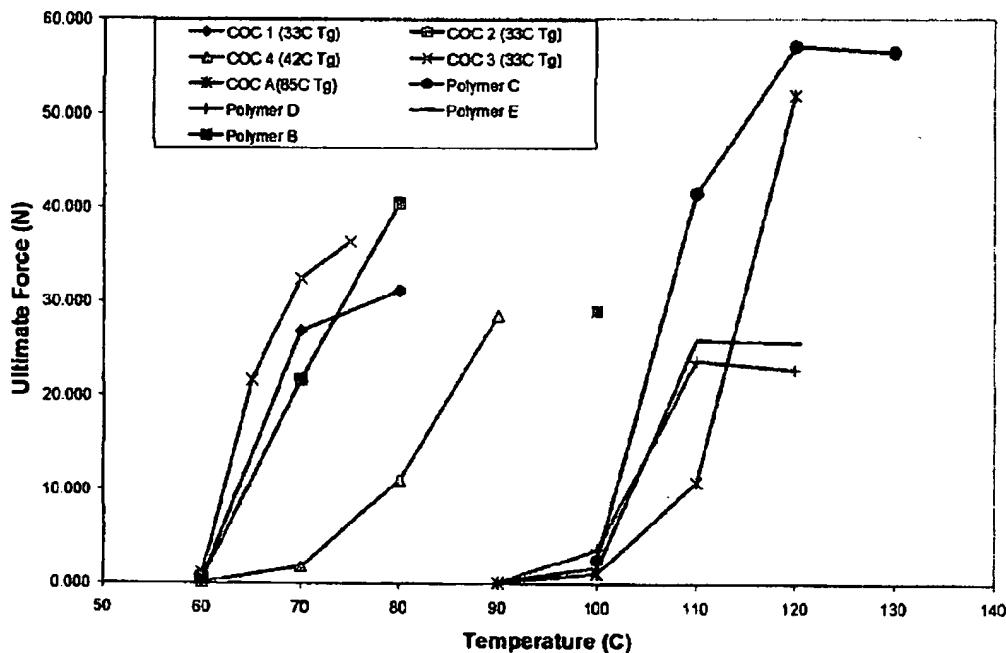


Figure 2**Ultimate Seal Strength**

8. That it is also surprising that the films which consist essentially of COC resin perform markedly better for low-temperature applications than blends of COC having modest amounts of another polyolefin. That this opinion is based on Samples 35-38 of the pending application which show that blends having even 20 % of LLDPE reach their peak seal strength values at temperatures substantially higher than the inventive films.
9. That the inventive films have a combination of properties that are not expected, and are highly desirable for low-temperature heat seal applications. That these properties include high hot tack strengths, high ultimate strengths, and good processability over a broad temperature range. That Figs. 5 and 6, below, specifically illustrate that the films may be processed over a relatively broad range of temperatures. That, in his technical opinion, the heat sealing properties of the films are likely unique to the claimed range and amount of COC; and that he bases this opinion, in part, on the

comparative examples in the specification where it can be seen that polymers with higher Tg's appear to have higher seal temperatures and lower hot tack values.

Figure 5

Hot tack Seal Strength, 100% COC

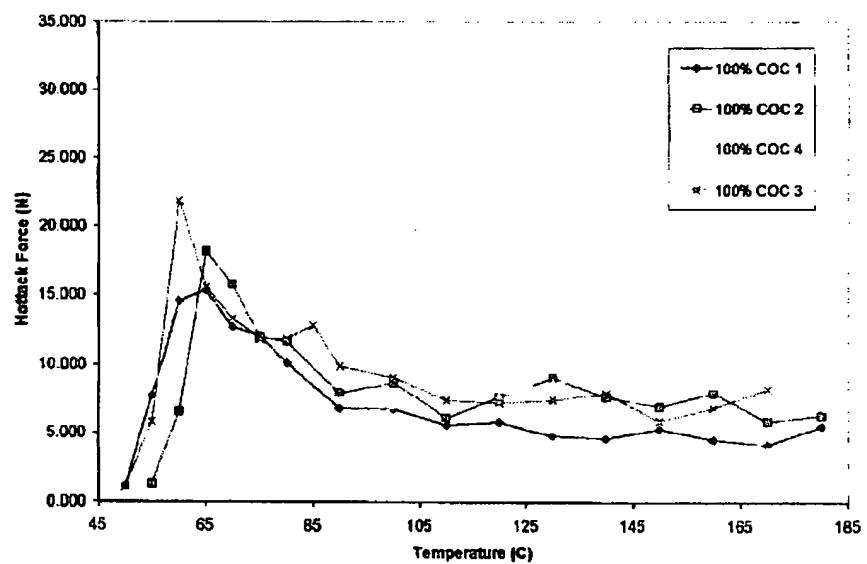
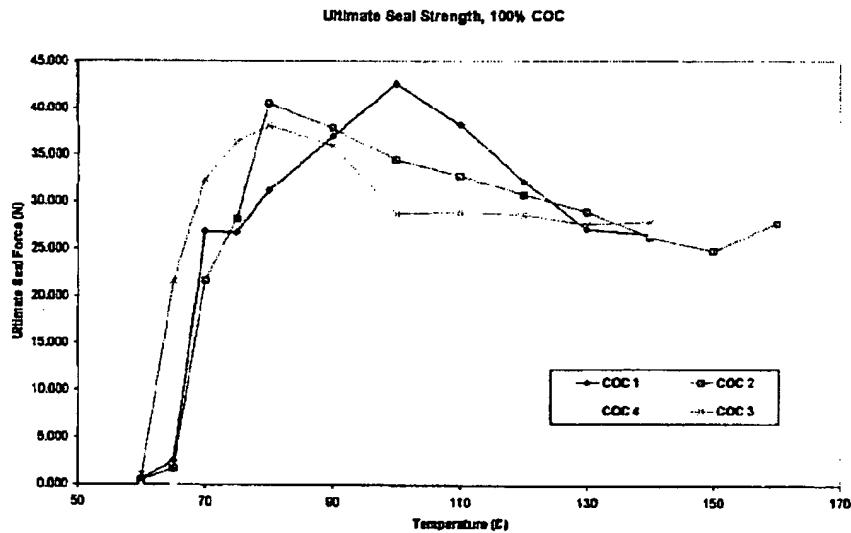
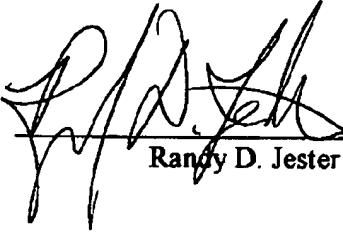


Figure 6

10. The undersigned Declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the subject application or any patent issuing thereon.

Dated

July 7 '2005
Randy D. Jester